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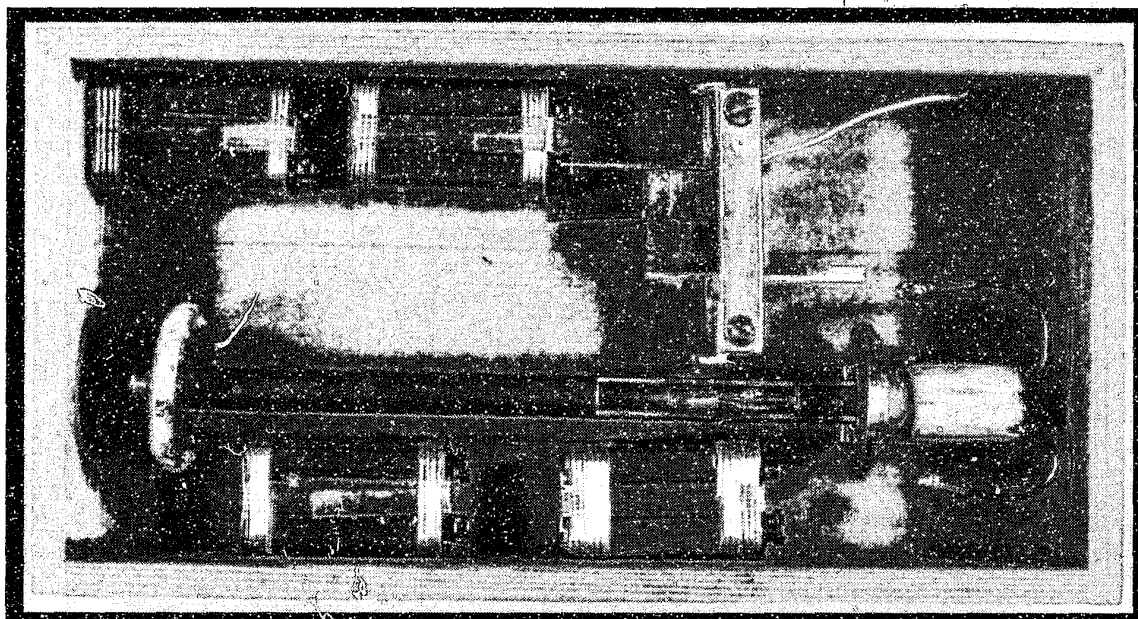
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CRIME LABORATORY DIGEST

JULY 1994

Volume 21, Number 3



UNABOM

Bank Robbery Note File

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CRIME LABORATORY DIGEST

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The *Crime Laboratory Digest* (ISSN 0743-1872) is a forensic science journal published by the FBI Laboratory Division in cooperation with the American Society of Crime Laboratory Directors (ASCLD). It is intended to serve as a means of communication between crime laboratories, permitting information of interest and value to be disseminated among crime laboratory scientists.

Postmaster: Send address changes to Editor, *Crime Laboratory Digest*, FSRTC, FBI Academy, Quantico, VA 22135

UNABOM



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From May 1978 through June 1993, a series of bombings for which there is no apparent explanation occurred throughout the United States. These bombings resulted in 1 death and 23 injuries. Law enforcement officials have been able to link 14 of the incidents due to similarities in the construction of the improvised explosive devices (IEDs).

The same person(s) constructed all the IEDs used in these bombings. The bomber(s) produced the devices with wooden components, improvised dowel-type initiators, and antidisturbance (booby-trapped) fusing mechanisms. All but one device used household-type batteries, lamp cords, and pipe bombs.

The FBI directs this investigation, captioned UNABOM for UNiversity and Airline BOMbing (after the second and third bombing incidents), in cooperation with the US Postal Inspection Service, the Bureau of Alcohol, Tobacco and Firearms, and the involved local police agencies. A UNABOM Task Force is headquartered at the FBI office in San Francisco, California, and the FBI Laboratory in Washington, DC conducts forensic examinations of the evidence. A suspect(s) has not yet been positively linked to the crimes.

After a 6-year hiatus, the bomber(s) struck on June 22, 1993, targeting a prominent medical scientist who is chairman of the Medical Genetics Department of the University of California at San Francisco. When he opened a package delivered to his residence in Tiburon, California, it detonated. His injuries included the loss of four fingers, a broken arm, and extensive internal and external injuries to his abdominal area. The device was postmarked from Sacramento, California.

Two days later on June 24, 1993, a renowned computer scientist at Yale University in New Haven, Connecticut received the 14th device in the office mail. The device, contained in a padded envelope, detonated when opened. The victim sustained internal injuries as well as severe damage to his fingers and arm. The bomber(s) also mailed this device from Sacramento, California.

The IEDs in these two incidents were assembled almost identically. They were

pipe bombs filled with a low explosive powder, contained in a homemade wooden box which was glued to the inside of a padded envelope. The devices were constructed with electrical wire, 9-volt batteries, an improvised switch, and a hot wire initiator (Figure 1).

Like the 12 other devices constructed by the bomber(s), both devices were

booby-trapped. When each package was opened, the spring tension applied to the switching mechanism released, completing the electrical circuit. Electrical power reached the improvised hot wire initiator, causing it to ignite the main charge explosive, which in turn ruptured the copper tubing. Figure 2 shows a model of the IED used in the bombings at Tiburon,

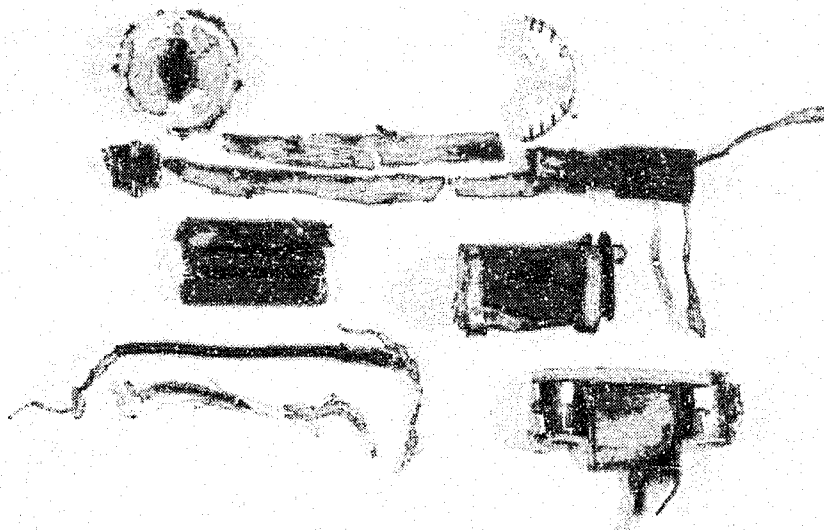


Figure 1. Fragments of the IEDs recovered from the most recent bombings.

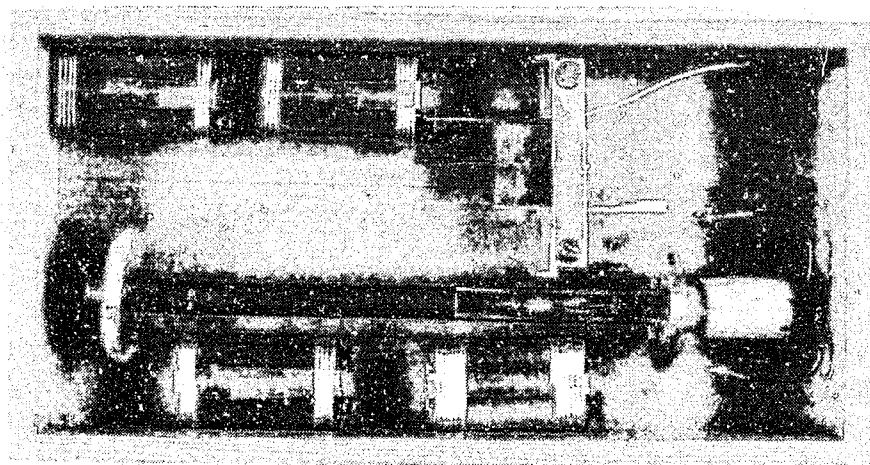


Figure 2. Model of the IED used in the bombings at Tiburon, CA and New Haven, CT. The FBI Laboratory's Explosives and Structural Design Units reconstructed the IED.

California and New Haven, Connecticut. The model was reconstructed by the Explosives Unit of the FBI Laboratory.

The first UNABOM incident known to the FBI occurred on May 25, 1978. A woman found a parcel on the University of Chicago campus in Chicago, Illinois, destined for a professor in Troy, New York. The return address belonged to a Northwestern University professor in Evanston, Illinois. The woman returned the package to the sender, but since he had not sent it and did not know the addressee, he contacted the campus police. The package exploded when opened by campus police. The IED consisted of a pipe bomb, filled with smokeless powder and match heads, contained in a carved-out wooden box. It had a rubber band-driven striker and percussion cap actuated by an antiopening triggering mechanism.

On May 9, 1979, a bomb exploded in an engineering building on the Northwestern University campus in Chicago, Illinois. A graduate student picked up a cigar box left on a table and opened the taped lid. The subsequent explosion seriously burned him. The bomber(s) constructed this match head device using unusual electrical components: two C cell batteries, two wooden dowel hot-wire initiators, and a pull-type loop switch made of lamp cord.

The third incident occurred on November 15, 1979, on a commercial airliner bound from Chicago, Illinois to Washington, DC. A flight attendant heard and felt a muffled thump, and shortly thereafter smoke poured into the cabin. The pilot made an emergency landing at Dulles Airport near Washington, DC, and emergency workers treated some passengers for smoke inhalation.

The explosive device detonated in the baggage-hold compartment of the plane. The bomber(s) had mailed the booby-trapped package, and the US Postal Service shipped the package on the airplane. The bomb initiated when a household barometer, modified as an altimeter switch, activated. The bomber(s) constructed this device by using two wooden dowel initiators, like the Northwestern University device, and incorporating a pull-type loop switch made from a multistrand lamp cord. The explosive charge was again smokeless powder (Figure 3). Incidentally, the device would have initiated upon opening even if the altimeter switch had failed.

The president of United Airlines, who resided in Lake Forest, Illinois, re-

ceived the fourth bomb in the mail on June 10, 1980. Upon opening the bomb, which was disguised as a book, the victim received lacerations to his hands, face, and thigh from the resultant explosion. This device consisted of a pipe bomb filled with smokeless powder, initiated with two wire loop switches like those examined in the previous cases. The bomb's

power source consisted of flashlight batteries soldered to lamp cord (Figure 4).

Bomb technicians rendered the fifth IED safe on October 8, 1981 at the University of Utah College of Business. The bomber(s) made this device in essentially the same manner as the previous incidents, but he/they added a gasoline container filled with accelerant. The

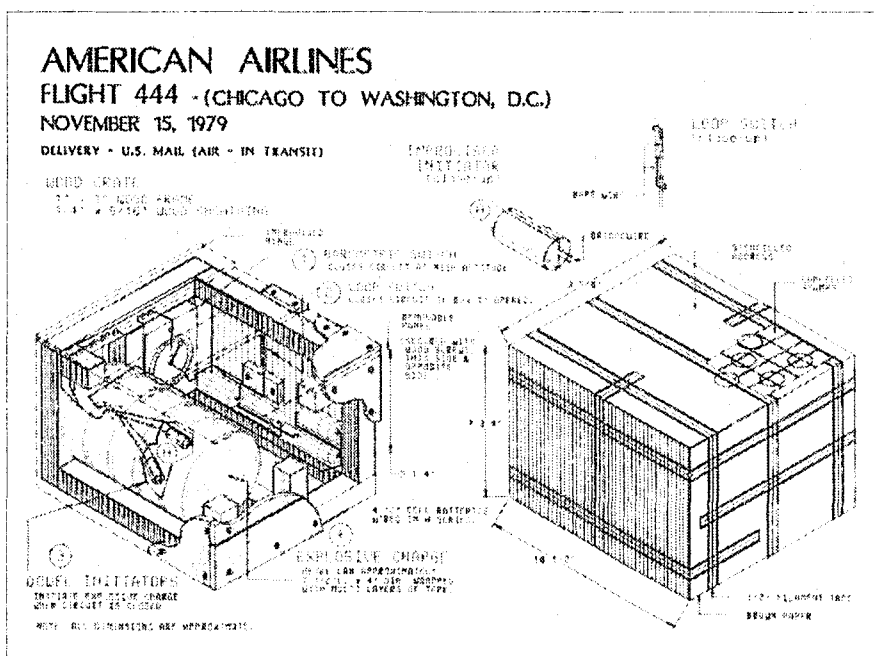


Figure 3. Diagram of the IED used in the third UNABOM incident.

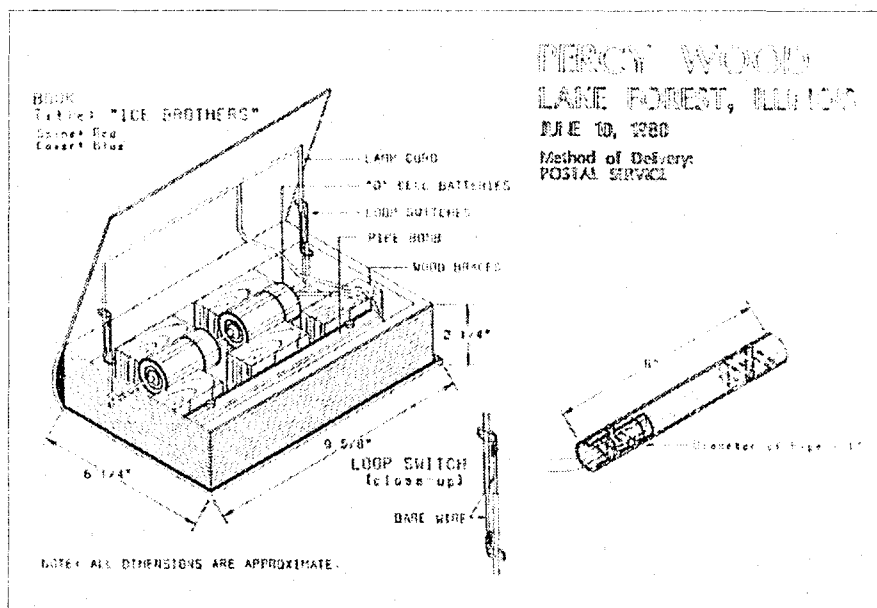


Figure 4. Diagram of the IED used in the fourth UNABOM incident.

bomber(s) designed the device to activate with an antilift mechanism (Figure 5). Forensic analysis of this device determined that wood was becoming a prevalent component of the bombs.

On May 5, 1982, the bomber(s) mailed the sixth IED to a professor at Vanderbilt University in Nashville, Tennessee, seriously injuring the secretary when she opened the package. This device was activated by twin-lever mechanisms attached to rubber bands and slip switches. It consisted of improvised wooden initiators, a pipe bomb filled with smokeless powder, and match heads, and it exhibited similar construction techniques.

The seventh bomb exploded on July 2, 1982 at the University of California at Berkeley in the mathematics building, seriously injuring a professor. The bomber(s) placed the device, disguised to look like a measuring instrument, in a lunch room used by graduate students. When the professor lifted the handle of the device, it exploded, causing injuries to his right arm and face. The device incorporated loop switches activated by a wooden handle, a smokeless powder pipe bomb, lamp cord, and D cell batteries. The bomber(s) built the device by suspending the pipe inside a gasoline container, similar to the fifth device.

Four years later, the eighth IED exploded on May 15, 1986, again at the University of California at Berkeley, in the same mathematics building, maiming a graduate student. The bomber(s) left the device on a table in the student computer room. When the student attempted to lift a three-ring binder connected to a plastic file box, it detonated, causing severe injuries to his right hand. This device incorporated a loop switch, a wooden frame, D cell batteries, and a pipe bomb contained in a plastic check file box. The bomb contained a mixture of ammonium nitrate and aluminum powder (AN/AL), a more powerful explosive than smokeless powder. The bomber(s) continued to use an improvised bridge wire assembly as an initiator with a pyrotechnic mixture booster placed in the pipe bomb.

On May 18, 1985, the Boeing Aircraft Fabrication Division in Auburn, Washington received the ninth bomb in the mail. It consisted of a paper-wrapped wooden box with two spring-driven sticks fashioned as pop-up switches, D cell batteries, and a pipe bomb which contained AN/AL as an explosive charge. The de-

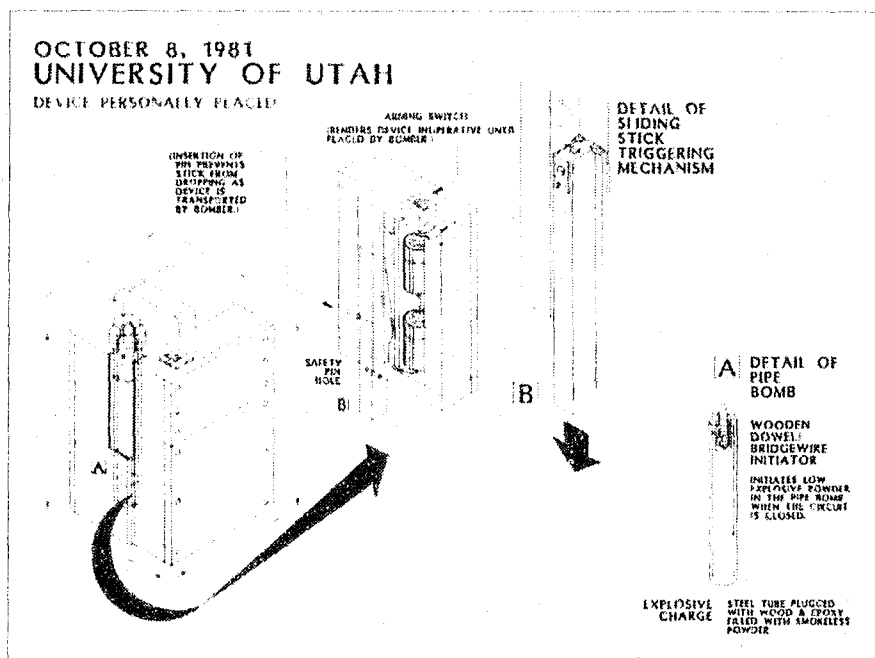


Figure 5. Diagram of the IED used in the fifth UNABOM incident.

vice failed to explode as planned, and bomb technicians rendered it safe.

A psychology professor from the University of Michigan in Ann Arbor received the 10th IED in the mail at his residence on November 15, 1985. The bomb, concealed inside a manuscript, exploded and seriously injured a graduate assistant who opened the professor's mail. The device, mailed from Salt Lake City, Utah, contained components similar to the other devices used in the UNABOM bombings. The pipe bomb contained AN/AL, and the fusing system consisted of a spring-loaded wooden trap door assembly activated when the package was opened.

The first fatality in this series of bombings occurred on December 11, 1985, with the death of Hugh Scrutton in Sacramento, California. The bomber(s) placed the device near the back door of the Rentech Company, a computer rental center owned by Scrutton. When he moved the object, which was disguised as a road hazard (*i.e.*, wooden boards with protruding nails), it exploded. Fragments from the bomb killed him.

This device was constructed in the same fashion as the others, with a pipe bomb in a homemade wooden box, D cell batteries, lamp cord, wood, tape, nails, and screws, with a main charge of AN/AL. In this case, the bomber(s) made the

pipe bomb with three different sized pipes of the same length concentrically fitted inside one another, plugged on each end with a steel dowel section, and fixed in place with steel pins (Figure 6).

A suspect was observed placing the 12th device in the parking lot of the CAAMSC Computer Rental and Sales store in Salt Lake City, Utah on February 20, 1987. When the owner of the store moved the object, which also appeared to be a road hazard, it detonated, maiming him. The device was constructed with three concentric pipes in the same manner as the Rentech device and used AN/AL as the explosive charge.

When last seen in 1987, witnesses described the UNABOM suspect as a white male, 25 to 30 years old, 5 feet, 10 inches to 6 feet tall, slender build, weighing approximately 165 pounds. He had reddish-blond hair, a ruddy complexion, and a small mustache. At that time, he was wearing a gray hooded sweatshirt drawn tightly around his face and tear-drop sunglasses with smoked lenses.

All of the UNABOM devices have been sophisticated pipe bombs ignited by an undetermined type of antistatisturbance switch and contained in homemade wooden boxes. Forensic examinations of the most recent evidence suggest the person(s) responsible for the construction of these bombs is using potassium

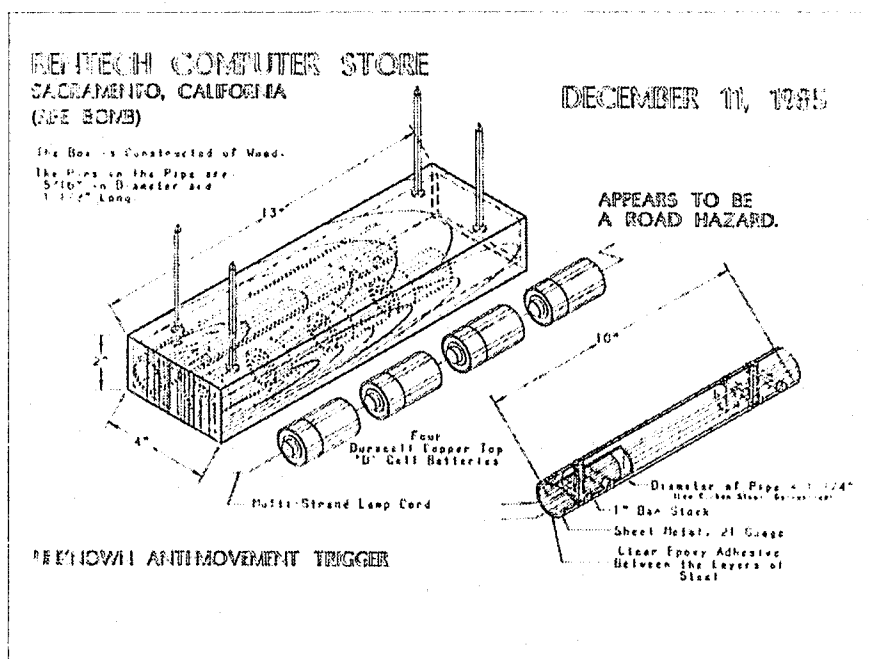


Figure 6. Diagram of the IED which caused the first death.

chlorate, AN, and AL as constituent chemicals for the explosive charge and is casting certain metal components for these devices using aluminum. The process of melting and casting aluminum is extremely dangerous and prone to cause an explosion.

Similarly, the chemicals being used to make the explosive charges also pose a risk of untimely detonation. While there is obviously a significant risk of an accidental explosion during the bomb manufacturing process, the sophistication of the latest devices suggests that testing was performed by the bomber(s) to ensure the devices functioned as intended, further increasing the risk to the bomb maker(s).

Seven of the UNABOM devices included the letters "FC" scratched or

punched into their metal components. Investigators do not know the significance of the letters, other than as a method for the bomber(s) to personalize the devices. In a communication the bomber(s) sent to the *New York Times* on June 24, 1993, he/they mentioned the letters "FC" to validate his/their responsibility for the two most recent bombings.

It appears highly probable that additional devices presently unknown to investigators have been used somewhere in the country. The UNABOM Task Force is alerting all law enforcement agencies about this information, particularly since the bomb maker(s) may have or will be forced to seek medical treatment as a result of an accident which may occur in the manufacturing process of these devices. The nature of the injuries may cause him/

them to be brought to the attention of law enforcement authorities by the medical personnel providing treatment. In addition, law enforcement agencies may become aware of fires caused by explosions involving the use of these chemical components.

All law enforcement agencies are requested to advise the UNABOM Task Force, their local FBI office, or one of the other agencies involved in the UNABOM investigation of any information relevant to this investigation. Figure 7 depicts the reward poster designed to publicize the UNABOM Task Force and promote the contribution of information which may be valuable to the UNABOM investigation. The UNABOM Task Force may also be contacted at the San Francisco office of the FBI (telephone: 415-553-7400).